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2021-2022 Montana EIR Upstart Program – Final Outcomes
June 2022

About Waterford Upstart: Waterford Upstart is an **in-home kindergarten readiness program** that was created by the Utah legislature in 2009. The program is implemented by Waterford.org and helps children develop the cognitive and social-emotional skills they need for school success.
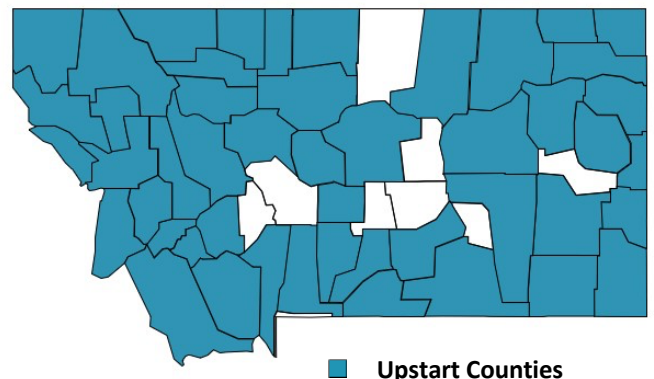
- Preschool-age children use **Waterford Upstart software in the home for 15-20 minutes a day**, five days a week.

  o The usage model falls **well within the American Academy of Pediatrics (AAP) recommendation of no more than one hour of screen time per day for 4-year-old-children**.

- Children receive a **personalized curriculum in reading, math, and science**.

- **Each family receives coaching to ensure strong parental engagement**. Waterford Upstart empowers parents in the education of their young children through a parent engagement curriculum developed over the program's 12 years of experience working with families.

  o While the curriculum is in English, **families are supported in English and Spanish, with translation services offered in additional languages**, as needed.

- **Social-emotional learning** is modeled in the curriculum and developed by parents through off-line activities.

- **All participants receive computers** and **Internet service is included as part of the program** if the home does not have connectivity.

Evidence of Effectiveness: Upstart's evidence of effectiveness has been thoroughly vetted in the most rigorous contexts and was a critical factor in recent **federal Education, Innovation and Research (EIR) Expansion Grant** and **TED Audacious Project** awards.

- The program meets **What Works Clearinghouse standings without reservations** and **ESSA Tier 1 Strong Evidence** standards.

- Upstart's **third-party randomized controlled trial (RCT) study for the U.S. Department of Education produced significant and sizable positive effect sizes**: 0.42 standard deviations of improvement in literacy for the reading group relative to the math group, and 0.38 in math for the math group relative to the reading group.

- Similarly, over **eleven years of external evaluations** in Utah show Upstart children achieve 2X-3X the learning of non-Upstart children and those **learning gains are maintained through the 4th grade**.

Montana EIR Upstart Program – Cohort 2: Waterford was awarded a **federal EIR Expansion Grant** that is being used to provide Waterford Upstart in the Great Plains states that historically have not provided significant funding for early childhood education, including Idaho, Montana, North Dakota, South Dakota, and Wyoming. **Over the past three school years, Waterford Upstart has been provided to approximately 600 preschool-age children across Montana**.

- Waterford Upstart is **aligned to Montana Early Learning Standards** and Head Start Early Learning Outcomes Framework; meets WIDA standards for language development; is a Certified Autism Resource; and is endorsed by the Council of Administrators of Special Education (CASE).

- Statewide, approximately **400 children from 97 municipalities across 48 counties** participated in Cohort 3 of the EIR Upstart program during the 2021-2022 school year.

  o **87.79% were rural** participants and **56.74% were ≤185% of the Federal Poverty Level**.

■ **Upstart Counties**

2021-2022 EIR Upstart Program Registrations by County

County	Count	County	Count	County	Count	County	Count
Beaverhead	2	Gallatin	22	Mineral	4	Silver Bow	4
Big Horn	2	Garfield	1	Missoula	20	Stillwater	9
Carbon	2	Glacier	10	Park	1	Sweet Grass	1
Carter	2	Granite	2	Phillips	2	Teton	1
Cascade	75	Hill	2	Pondera	7	Toole	5
Chouteau	1	Jefferson	7	Powder River	4	Valley	3
Custer	4	Judith Basin	1	Powell	2	Wheatland	1
Daniels	1	Lake	7	Ravalli	15	Wibaux	5
Dawson	5	Lewis & Clark	14	Richland	6	Yellowstone	94
Deer Lodge	1	Liberty	1	Roosevelt	3	**TOTAL**	**393**
Gallon	3	Lincoln	3	Rosebud	3		
Fergus	5	Madison	1	Sanders	5		
Flathead	19	McCone	1	Sheridan	4		

2021-2022 EIR Upstart Program Registrations by Municipality

Municipality	Count	Municipality	Count	Municipality	Count	Municipality	Count
Alberton	1	Conner	1	Hilger	1	Saint Marie	1
Anaconda	1	Conrad	6	Huntley	3	Scobey	1
Augusta	1	Corvallis	2	Huson	1	Seeley Lake	4
Baker	3	Crow Agency	1	Kalispell	12	Shawmut	1
Belgrade	9	Culbertson	1	Lambert	2	Shelby	5
Big Arm	1	Cut Bank	8	Laurel	1	Shepherd	6
Big Timber	1	Deer Lodge	1	Lewistown	3	Sidney	4
Billings	84	Dillon	2	Libby	2	Simms	1
Black Eagle	1	Dixon	1	Lincoln	1	Somers	1
Bloomfield	1	Drummond	1	Lolo	2	Stevensville	6
Boulder	4	East Helena	2	Malta	2	Superior	3
Boyes	2	Elliston	1	Manhattan	2	Thompson Falls	4
Bozeman	10	Florence	1	Marion	2	Valier	1
Broadus	4	Forsyth	2	McAllister	1	Vaughn	1
Brockton	1	Frenchtown	3	Missoula	10	Victor	1
Browning	2	Garryowen	1	Moccasin	1	Volborg	4
Brusett	1	Glasgow	2	Pablo	1	W. Yellowstone	1
Butte	4	Glendive	4	Park City	5	Westby	1
Cascade	1	Grass Range	1	Plentywood	3	Whitefish	1
Chester	1	Great Falls	71	Polson	3	Whitehall	1
Circe	1	Hall	1	Power	1	Wibaux	5
Clancy	2	Hamilton	4	Pray	1	Wolf Point	1
Colstrip	1	Havre	2	Rexford	1	**TOTAL**	**393**
Columbia Falls	3	Helena	10	Roberts	2		
Columbus	4	Highwood	1	Ronan	2		

Ethnicity/Race	Count	Percent
Caucasian	293	74.55%
Native American/Alaska Native	41	10.43%
Latino/a	21	5.34%
Other	20	5.10%
African American	7	1.78%
Decline to Answer	6	1.53%
Asian/Pacific Islander	5	1.27%

Equipment Provided	Count	Percent
Received Computer	405	100.00%
Received Internet Service	56	14.25%

Rurality & SES	Count	Percent
Rural	345	87.79%
≤185% Federal Poverty Level	223	56.74%

Average Curriculum Usage: The **average total reading usage** for participants was **1,884.42 minutes** and the **average total math and science usage** for participants was **2,091.37 minutes** over the course of the program.

Reading Program Outcomes: The **Waterford Assessment of Core Skills (WACS) is a computerized adaptive test of early literacy for students in Pre-Kindergarten through second grade** with initial content validity established against state and national standards. To establish concurrent validity and predictive validity, **student performance on WACS was compared to performance on five commonly-used standardized tests** also measuring early reading skills, **including DIBELS** (Dynamic Indicators of Basic Early Literacy Skills), **IRI** (Idaho Reading Indicator), **ITBS** (Iowa Tests of Basic Skills), **SAT 10** (Stanford Achievement Test Series), and **TPRI** (Texas Primary Reading Inventory).

WACS Grade Equivalent Difficulty Ranges: The following table provides **question difficulty ranges for the Waterford Assessment of Core Skills (WACS) by grade level**. Each grade level is divided into thirds: Kindergarten Beginning, Kindergarten Intermediate, and Kindergarten Advanced.

Grade	Beginning	Intermediate	Advanced
Preschool	1001 - 1333	1334 - 1666	1667 - 2000
Kindergarten	2001 - 2333	2334 - 2666	2667 - 3000
First	3001 - 3333	3334 - 3666	3667 - 4000
Second	4001 - 4333	4334 - 4666	4667 - 5000

Average final scores for children that completed WACS showed the following **notable outcomes**:
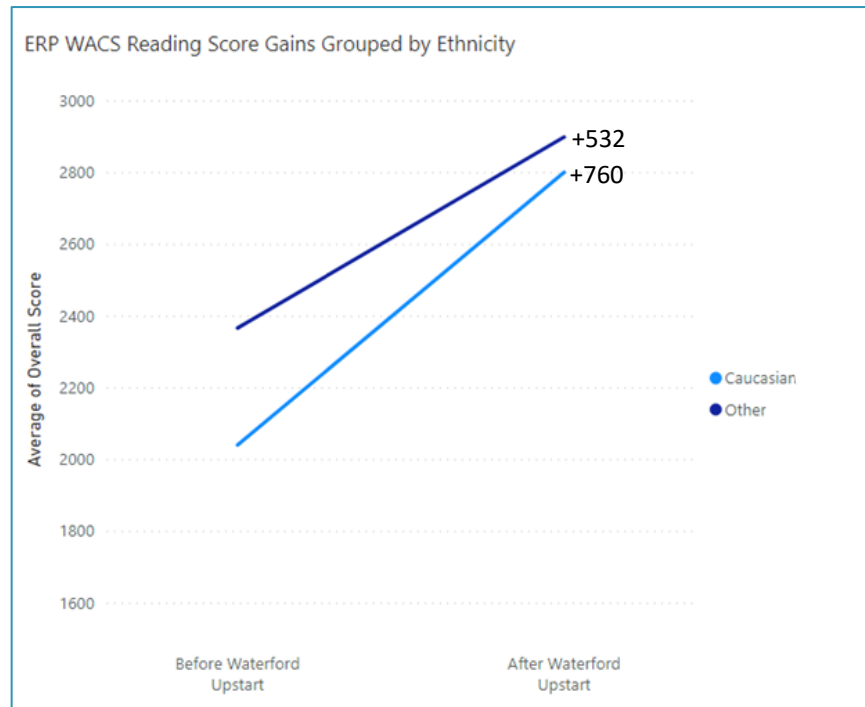
- **Children's outcomes averaged at the "Kindergarten Advanced" level** (with an average final WACS score of **2814.92**) where most children score at near the end of the Kindergarten year.

- **92.13% of children scored at "Kindergarten Beginning" or above**, demonstrating strong school readiness outcomes.

The following table provides results on assessed skills and shows average final **WACS subtest scores and their grade equivalents** for the program.
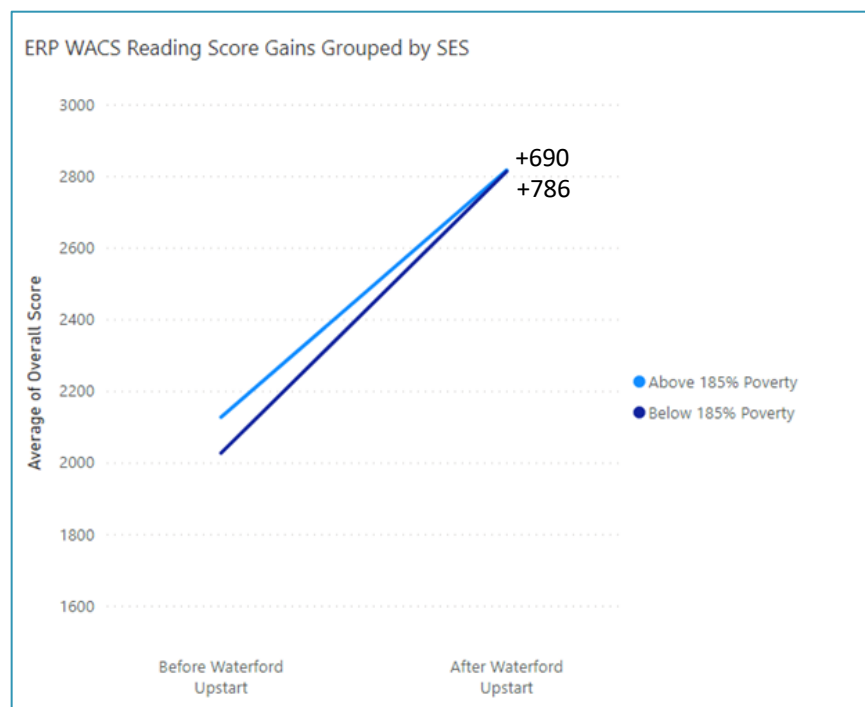
Measured Skill	Average Final WACS Score	Grade Equivalent of Average Final WACS Score
Letter Recognition	2053	Kindergarten Beginning*
Letter Sound	2685	**Kindergarten Advanced**
Initial Sound	2623	**Kindergarten Intermediate**
Blending	2900	**Kindergarten Advanced**
Listening Comprehension	2731	**Kindergarten Advanced**
Non Words	3282	**1st Grade Beginning**
Sight Words	3100	**1st Grade Beginning**
Real Words	3343	**1st Grade Intermediate**
Reading Comprehension	3528	**1st Grade Intermediate**
Vocabulary	3106	**1st Grade Beginning**

Note that "Kindergarten Beginning" is highest possible achievement level for the "Letter Recognition" skill.
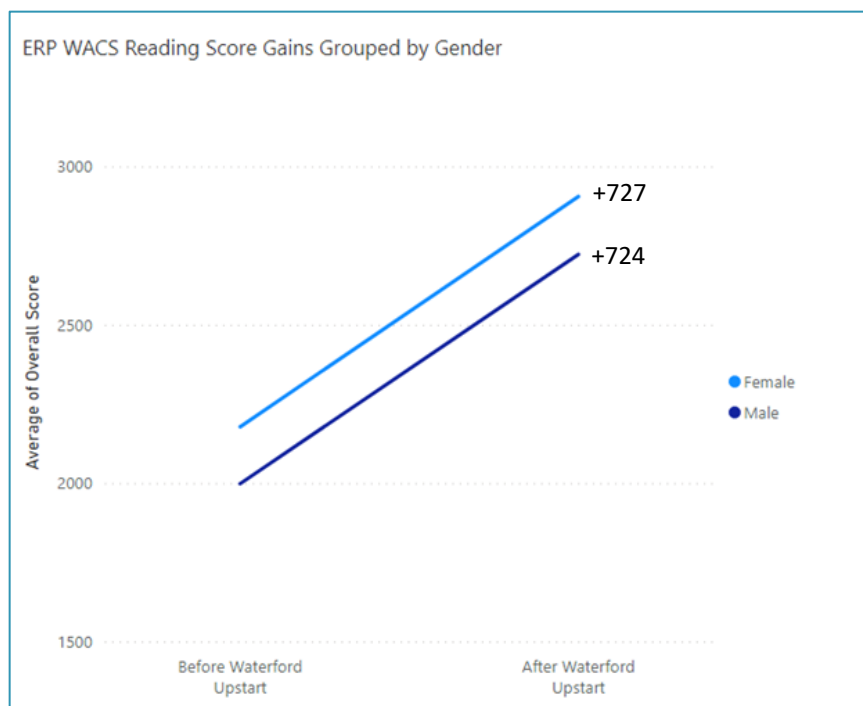
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The following graphs show **WACS reading score gains grouped by reported ethnicity/race, socio-economic status (SES), and gender** for the 2021-2022 EIR Upstart program. The numbers within the graph indicate point score gains from pretest to posttest.

ERP WACS Reading Score Gains Grouped by Ethnicity

Ethnicity/Race	Percent of Cohort	Average Final WACS Score	Grade Equivalent of Final WACS Score
Caucasian	74.55%	2799.48	**Kindergarten Advanced**
Other (non-Caucasian)	25.45%	2897.64	**Kindergarten Advanced**

ERP WACS Reading Score Gains Grouped by SES

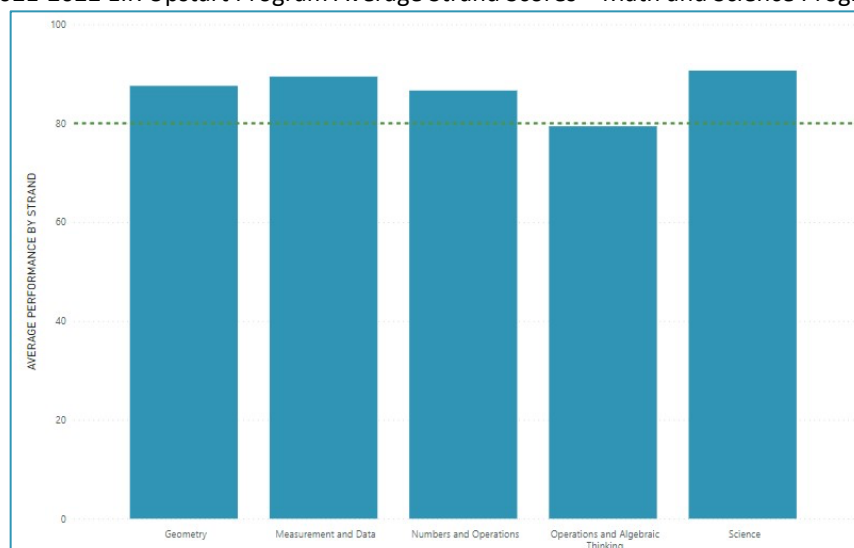| Socio-economic status (SES)	Percent of Cohort	Average Final WACS Score	Grade Equivalent of Final WACS Score
>185% Federal Poverty Level	56.74%	2816.36	**Kindergarten Advanced**
≤185% Federal Poverty Level	43.26%	2812.48	**Kindergarten Advanced**

ERP WACS Reading Score Gains Grouped by Gender

Gender	Percent of Cohort	Average Final WACS Score	Grade Equivalent of Final WACS Score
Female	46.56%	2905.20	**Kindergarten Advanced**
Male	53.44%	2722.59	**Kindergarten Advanced**

Math and Science Program Outcomes: **Math and science strand scores** are scores for subskills as a percentage of 100. A **score of 80 or higher within the Waterford Early Math and Science Program represents mastery**, which is the goal of the cognitively based Waterford Upstart program. The sequencer, within the software, individualizes instruction to provide remediation until a child achieves mastery.

The following figure shows the average score, organized by strand, for all students who scored on a given strand for math and science. The green line represents the expected average score, 80. **After participating in the 2021-2022 EIR Upstart program, the average score for all five of the math and science strands was above 80.**

2021-2022 EIR Upstart Program Average Strand Scores – Math and Science Program

Parent Satisfaction: Parents/guardians participating in the program completed a comprehensive survey to provide feedback related to their, and their child's, experience in the program.

Survey Responses

% Agree	Respondents' experiences with the Waterford Upstart program
91% YES	I like that the program expects our family to create a daily routine for using it.
93% YES	The program helped prepare my child for kindergarten.
81% YES	The program helped prepare ME to help my child in school next year.
79% YES	The program helped me realize the importance of participating in my child's learning.
65% YES	The program made me feel equipped to engage with my child's teacher next year.
95% YES	I feel confident that I can help my child transition from PreK to kindergarten.
81% YES	When using the program, my child experienced higher quality experiences, compared to other apps or TV programs.
85% YES	The program was engaging to my child.
81% YES	My child is now better able to work independently.

% Agree	Respondents' experiences with Waterford Upstart representatives
95% YES	A representative gave me what I needed to effectively support my child.
96% YES	A representative helped solve the issues I had.
100% YES	A representative was friendly and polite when we communicated.
97% YES	A representative was knowledgeable about the program and software.

% Agree	Respondents' evaluation of the Waterford Upstart program
90% YES	Reading Program: In general, did your child enjoy using the program?
98% YES	Reading Program: Do you think the program was age appropriate?
95% YES	Reading Program: Do you feel the weekly usage requirements were appropriate?
83% YES	Math and Science Program: In general, did your child enjoy using the program?
100% YES	Math and Science Program: Do you think the program was age appropriate?
95% YES	Math and Science Program: Do you feel the weekly usage requirements were appropriate?

Average Response	Respondents' satisfaction with the Waterford Upstart program
9.04	On a scale of 0 to 10, how likely are you to recommend Waterford Upstart to a friend or colleague?
8.83	On a scale of 0 to 10, overall, how satisfied are you with your and your child's experience using the Waterford Upstart program?